

WE CLAIM:

1. A delivery head comprising:
  - (a) a delivery arm and a spray diverter constructed to divert a multiple phase composition flowing through the delivery arm and diverted by the spray diverter to provide a target spray pattern; and
  - (b) open area in the delivery head sufficient to provide the target spray pattern and to provide a back pressure of less than about 10 psig when a multiple phase composition is flowing through the delivery head at a liquid flow rate of about 2 gal/min. to about 20 gal/min., and the volumetric ratio of gas to liquid is between about 5:1 and about 75,000:1 at atmospheric pressure.
2. A delivery head according to claim 1, further comprising:
  - (a) at least one attachment arm having a first end attached to the delivery arm and a second end attached to the spray diverter.
3. A delivery head according to claim 2, further comprising a plurality of the attachment arms.
4. A delivery head according to claim 1, wherein the open area comprises a plurality of openings.
5. A delivery head according to claim 1, wherein the delivery arm comprises a pin receiving slot.
6. A delivery head according to claim 1, wherein the open area in the delivery head is sufficient to provide a back pressure of less than about 5 psig.
7. A delivery head according to claim 1, wherein the delivery head is constructed to provide delivery of a liquid phase of a multiple phase treatment

composition to a surface that is between about 6 feet and about 8 feet away from the delivery head.

8. A vessel comprising:

- 5 (a) an interior surface arranged for holding a liquid;  
(b) a multiple phase treatment composition inlet line; and  
(c) at least one delivery head for delivering a multiple phase treatment composition to the interior surface, at least one delivery head comprising:

10 (i) a delivery arm attached to the cleaning composition inlet line;

(ii) a spray diverter constructed to direct a multiple phase composition flowing through the delivery arm and diverted by the spray diverter to provide a target spray pattern on the interior surface; and

15 (iii) open area in the delivery head sufficient to provide the target spray pattern and to provide a back pressure of less than about 10 psig when a multiple phase composition is flowing through the delivery head at a liquid flow rate of about 2 gal/min. to about 20 gal/min., and the volumetric ratio of the gas to liquid is between about 5:1 and about 75,000:1 at atmospheric pressure.

20 9 A vessel according to claim 8, further comprising:

(a) at least one attachment arm having a first end attached to the delivery arm and a second end attached to the spray diverter.

25 10. A vessel according to claim 9, further comprising a plurality of the attachment arms.

11. A vessel according to claim 8, wherein the open area comprises a plurality of openings.

12. A vessel according to claim 8, wherein the delivery arm comprises a pin receiving slot.

13. A vessel according to claim 8, wherein the open area in the delivery head  
5 is sufficient to provide a back pressure of less than about 5 psig.

14. A vessel according to claim 8, further comprising a product inlet.

15. A vessel according to claim 8, further comprising a vent for venting gas  
10 from the multiple phase treatment composition.

16. A vessel according to claim 15, wherein the vent comprises a demister for recovering liquid phase from the multiple phase treatment composition.

17. A vessel according to claim 8, further comprising a liquid outlet for  
15 recovering liquid from inside the vessel.

18. A vessel according to claim 8, wherein the vessel comprises at least one of a fermentation tank, an aging tank, a holding tank, a mixer, an evaporator, and a reactor.  
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19. A vessel according to claim 8, wherein the vessel has a capacity of between about 200 gallons and about 5,000 gallons and includes a single delivery head.

20. A method for treating the interior surface of a vessel with a multiple phase  
25 treatment composition, the method comprising:

(a) delivering a multiple phase treatment composition through a delivery head inside a vessel to create a target spray pattern that provides liquid from the multiple phase treatment composition onto an interior surface of the vessel.